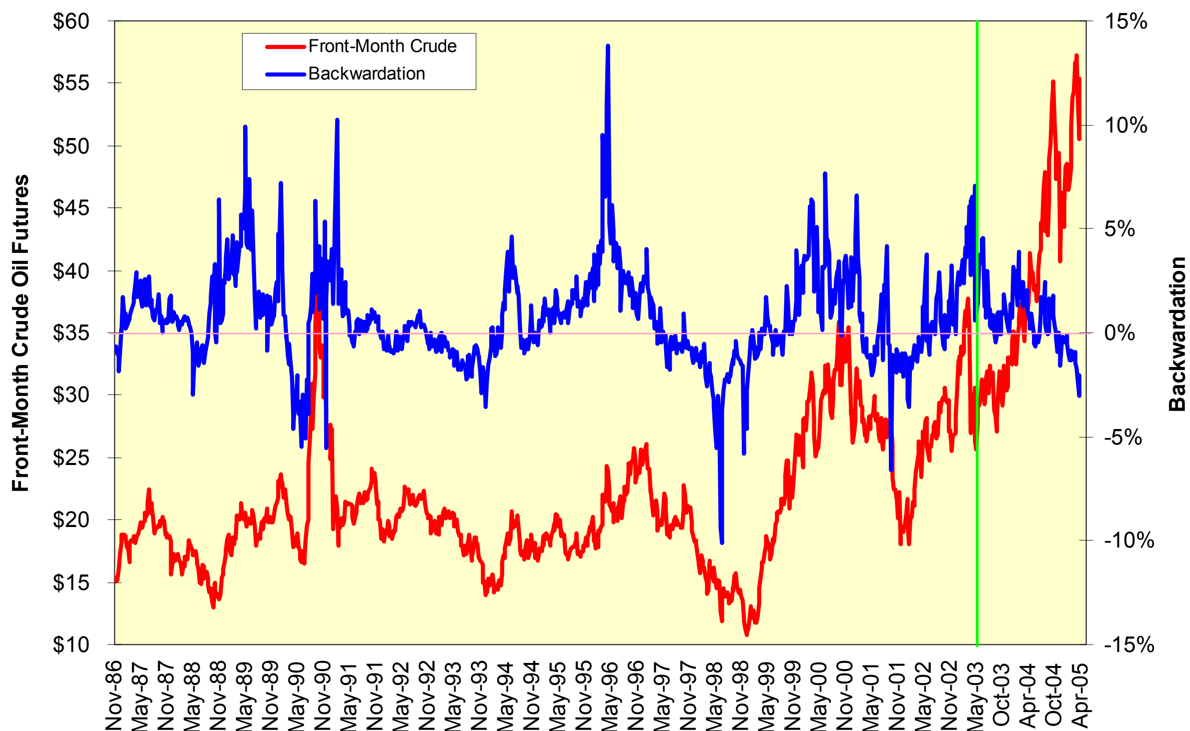
It Takes Crude To Contango

One of the real problems involved with rules of thumb is the tendency of thumbs to show up in the most unexpected places. As David Merkel noted in a Columnist Conversation posting last Friday, many observers link the price of commodities with their forward curve.

The rule of thumb for crude oil has been rising prices are accompanied by backwardation, or the price of distant futures below those of near-term futures, and falling prices are accompanied by contango, or near-term futures below those of distant months. Actually, to be precise in our definitions, let's stipulate that a forward curve wherein prices rise over time is a "carry" curve, one in which the buyer pays the seller all or part of the storage costs associated with carrying an inventory forward over time. Contango is a subset of carry; it exists when there is a glut of present supply and where the price of a distant futures contract exceeds the full-carry price. If I may be permitted a shameless plug, I discuss backwardation and contango in Chapter 4 of my book.

These supposed linkages between price and the forward curve were supported by two decades of data in the crude oil futures market. If we measure backwardation as [$Month_1$ – $Month_2$] / $Month_2$, we readily can see how price and backwardation were correlated between 1986 and May 2003, the accomplishment date of our mission in Iraq.

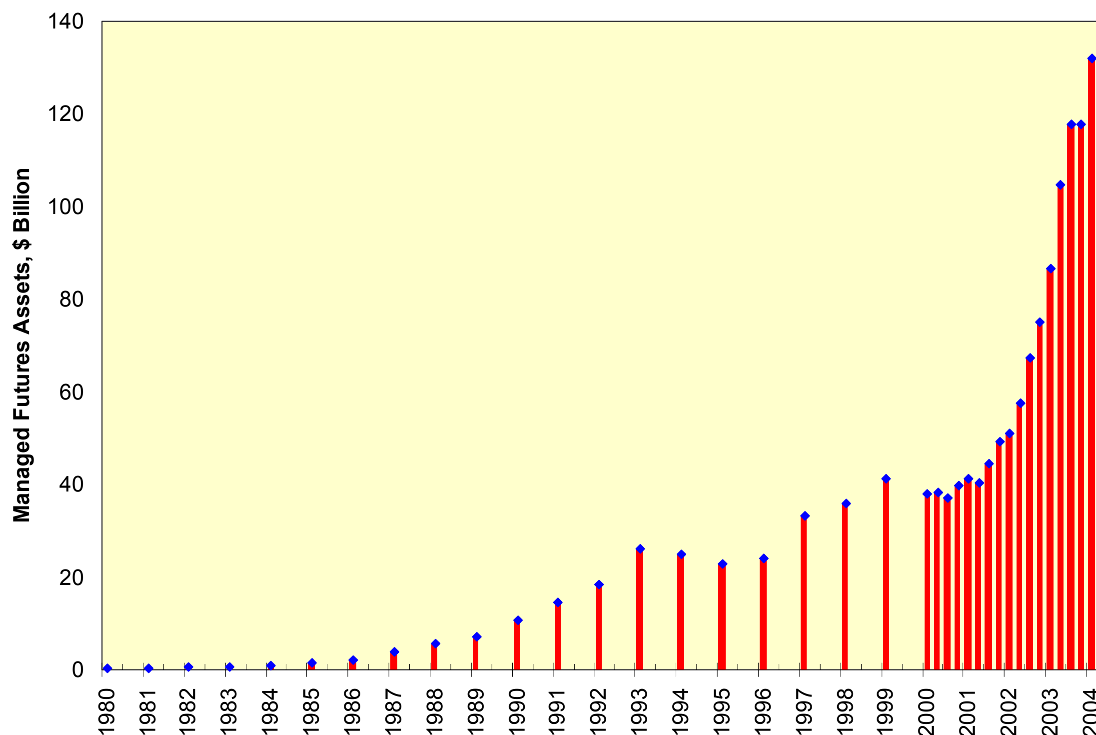
After The Mission Was Accomplished



The relationship broke, and broke by 180 degrees, thereafter. On first blush, this is contrary to financial theory: Crude oil, like all commodities whose deliveries are constrained logistically - think of the capacities of field production, tankers, pipelines, loading jetties, etc. - should see its front-month price rise more in a bull market. When you need it, you need it now, not six months from now. And producers looking to lock in the current high prices have cannot sell futures for immediate delivery in excess of their production capacity, so they have to sell the back months. The combination of buyers buying now and sellers selling later creates backwardation.

What Changed?

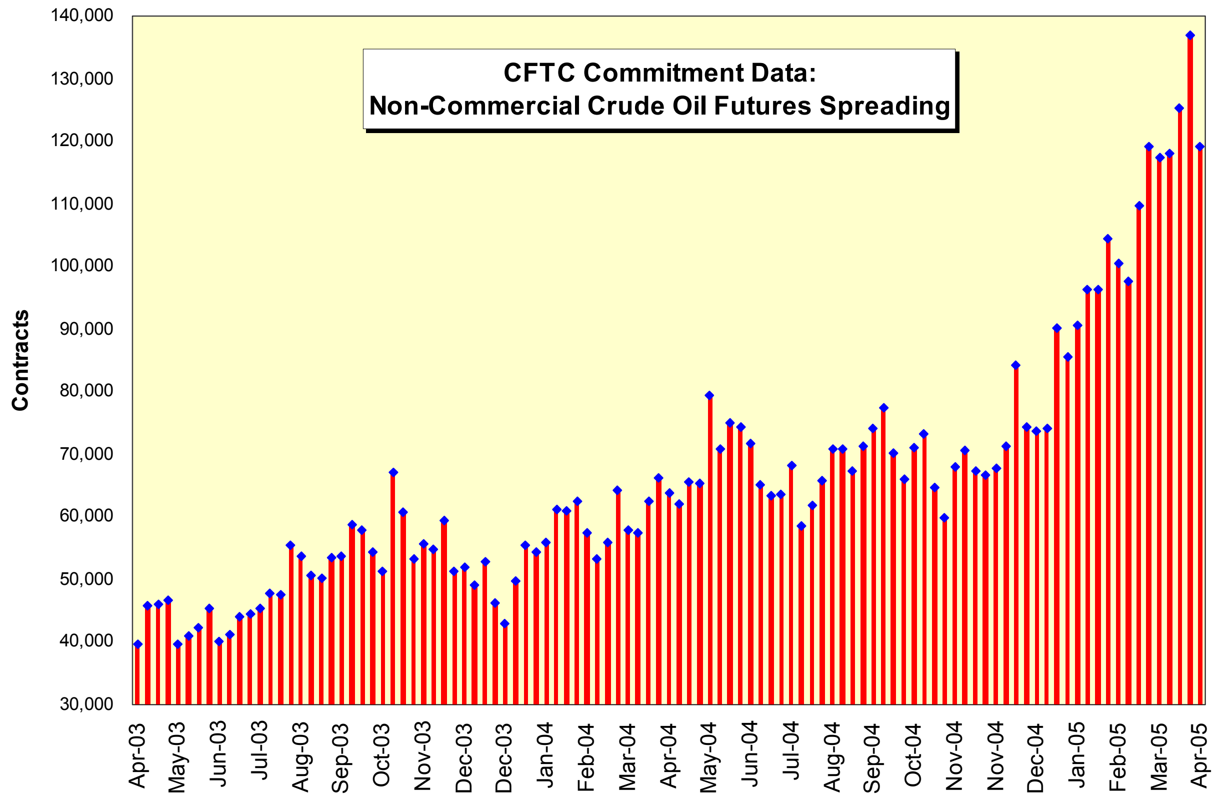
Given the above, why do we see a pattern after May 2003 counter to both previous experience and financial theory? The answer proposed here is the arrival and acceptance of long-only commodity index funds and a flood of money into managed futures programs in general, a development predicted here in October 2001. Dogs chase cars and investor funds chase performance. Consider how managed futures assets have exploded in the last two decades.



One source of returns identified for long-only commodity index investors was the harvest of backwardation. The concept was the funds would buy the distant-month futures, hold them as they rode up the backwardation curve, sell them prior to expiration and buy another set of distant-month futures.

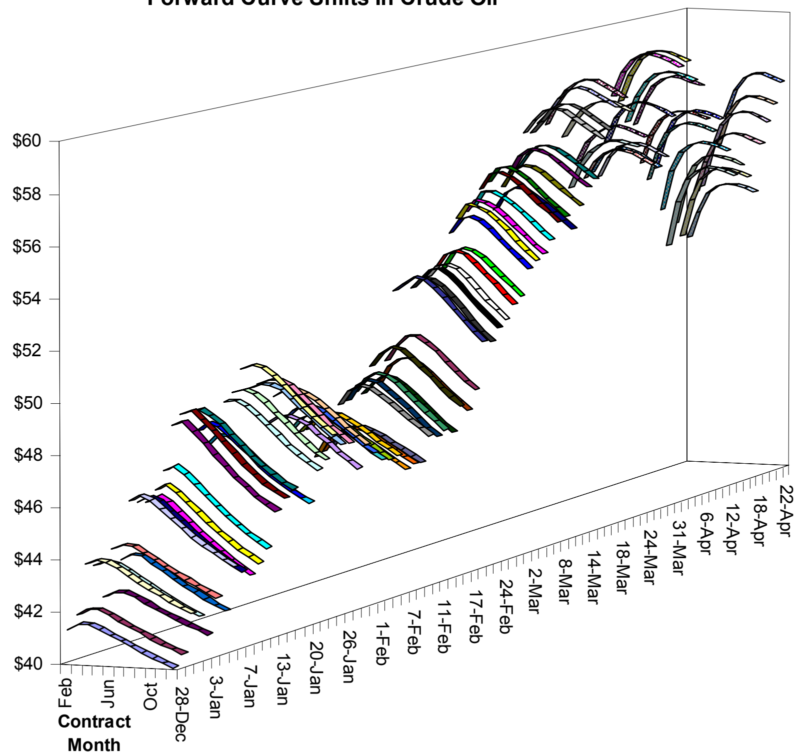
But, as noted here last December, that strategy carried the seeds of its own destruction. Remember those producers selling the distant months above? If they are selling a distant future for less than today's cash market price, they are taking a known and finite loss. This is a form of insurance. Globally, there is a finite pool of insurance, and this pool needs to be split among the long-only commodity indexers.

Worse, the success of this strategy depends on everyone else's mothers raising stupid children. How long would it take for the counterparties to these long-only indexers to catch on to the game and front-run the strategy? Judging from the price and backwardation chart above, the music stopped playing after May 2003, but the dancing continued. We can illustrate the extent to which opportunistic traders began picking off the indexers by going short the front month and long the second month and then waiting for the funds to provide a payday with the Commodity Futures Trading Commission's Commitment of Traders data for spread positions held by non-commercial traders. The drop in the last week is associated with the recent expiration of the May 2005 contract.



All Trading Is Local

As a matter of fact, the opportunistic traders must have been having such a good time at the funds' expense that they went and told their friends. Let's see how the price-forward curve relationship has changed on a daily basis since the end of 2004. Each ribbon in the chart below represents a forward curve beginning with the front month and ending with the December 2005 contract. The near months are on the left of the ribbon; the far months are on the right of the ribbon. As time goes forward and as price rises, the switch from a backwardated structure - front months over the back - switches to a deeper and deeper carry and a bona fide contango.



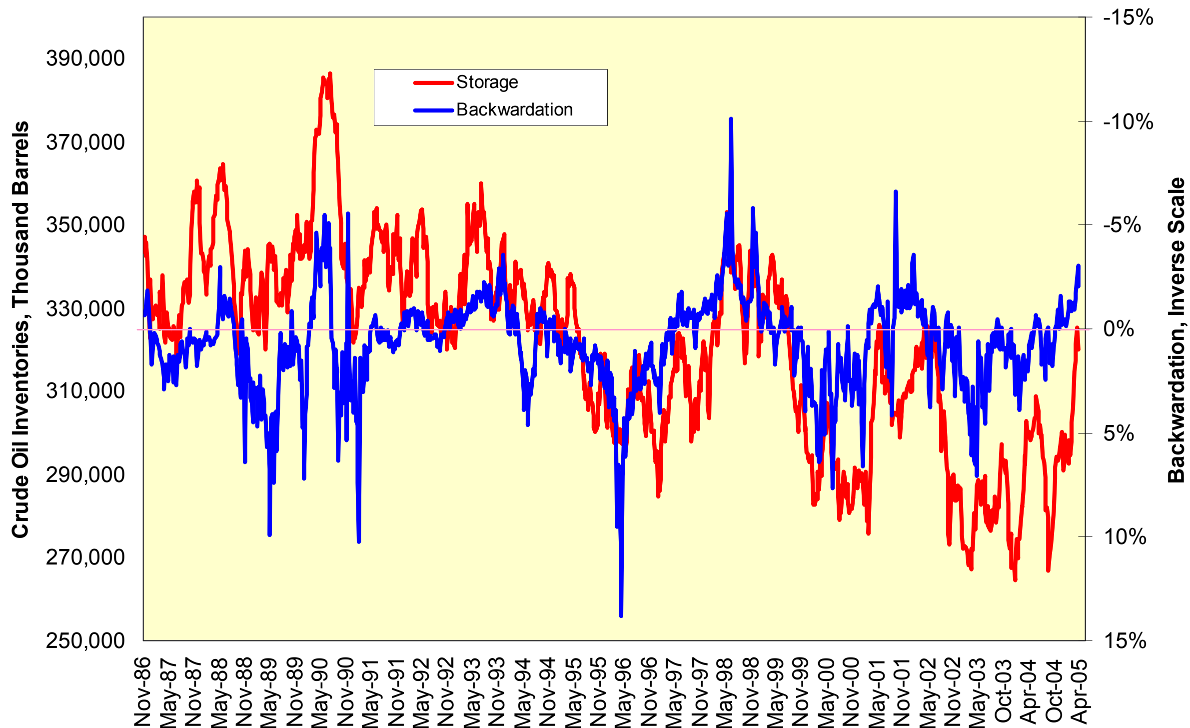
Impact On Inventories

The phrase "bona fide contango" means an operator should be able to buy front-month crude, take delivery, pay associated storage charges and hedge the inventory by selling the second-month future. Let's run some numbers from April 22, 2005:

1. Go long June crude oil @ $55.39
2. Go short July crude oil @ $56.54
3. Take delivery of June crude on May 24
    a. Pay $55,390 for 1,000 barrels
    b. Incur interest of 3-month repurchase, 2.80%, for one month, or approximately 13¢ per barrel
    c. Incur storage and pumping charges of approximately 60¢ per barrel
4. Delivery the stored crude oil on June 23rd, the July expiration date and receive $56,540

You should be able to clear 42¢ a barrel on this deal. More properly, an industry player should be able to clear this; unless you are a commercial trader, do not try this at home. Contango, if it is emitting the proper price signals, should lead to increases in inventories and to lower prices in the future. Has this been the case?

Contango Permits Inventory Building



Most decidedly yes: The ability to buy and hedge inventories permits their rebuilding. Will this lead to lower prices down the road? That is a far tougher question; the amounts of crude oil in U.S. storage may not be sufficient to cool prices if global demand growth remains strong.

One final answer to Dave Merkel's question whether contango represents panic and over-hedging on the part of the buyers: I would say no, not unless someone out there is fretting about September deliveries to the extent they are willing to pay a $2 per barrel premium. When buyers panic - and they do all the time - they panic over prompt delivery, and that, as a rule of thumb, produces backwardation.